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# SCIENCE

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## CONTENTS

<i>The Balance, the Steelyard and the Concept of Force:</i> DR. WILLARD J. FISHER .....	427
<i>The Scientific Members of the British Educational Mission</i> .....	433
<i>William John Keep</i> .....	437
<i>Scientific Events:—</i>	
<i>Science and Industry in Tasmania; Manganiferous Ore in Oregon; Exhibit of Minerals useful in War; Library of the Edgewood Arsenal Laboratory; Endowment of Engineering Research</i> .....	438
<i>Scientific Notes and News</i> .....	442
<i>University and Educational News</i> .....	441
<i>Discussion and Correspondence:—</i>	
<i>The Scientific Name of the Passenger Pigeon:</i> HARRY C. OBERHOLSER. <i>Alleged Rediscovery of the Passenger Pigeon:</i> JOHN M. CLARKE, S. M. RASMUSSEN. <i>Do we want a Great Private Institution for Inventors like the Institute of France for Artists?</i> DAVID FAIRCHILD. <i>Circular Frequency:</i> PROFESSOR ARTHUR TABER JONES .....	445
<i>Scientific Books:—</i>	
<i>Armsby on the Conservation of Food Energy:</i> PROFESSOR GRAHAM LUSK .....	447
<i>The Flora of North Dakota:</i> O. A. STEVENS.	448
<i>Special Articles:—</i>	
<i>Pear Blight Wind Borne:</i> PROFESSOR F. L. STEVENS, W. A. RUTH, C. S. SPOONER.....	443

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## THE BALANCE, THE STEELYARD AND THE CONCEPT OF FORCE

THE primitive philosophy of *Animism*, "the doctrine that a great part, if not the whole, of the inanimate kingdom, as well as all animated beings, are endowed with reason, intelligence and volition, identical with that of man," still to a degree sticks in mechanics, in the concept of force. Schopenhauer is quoted as saying:

That the essence of forces in inorganic nature is identical with the will in us, every one believes with full certainty and as a demonstrated truth, who seriously considers it.

R. Eisler says:

Force is a concept which gets its content originally from the capacity of the ego in general by means of its will to bring about something, to overcome a resistance, and is then immediately superposed upon the objects of the external world. . . . Since the ego finds limits to its activity in the external world, feels itself hindered by objects, it inevitably interprets the hindrance as the expression and activity of a sort of will-power analogous to itself which things exert against it and by virtue of which they can or do influence other things. . . .

E. Mach says that the concept of force is a survival of fetishism; Kirchhoff, in the famous prefix to his *Mechanics*, acknowledges the value of the older view in the development of the science, and its usefulness in elementary teaching, but takes for himself this higher ground:

I propose as the problem of mechanics, to describe the motions which occur in nature, and, forsooth, to describe them completely and in the simplest way. I will further add that it should deal only with this, to state what the phenomena are, not to determine their causes.

For him the term force "forms only a means of simplifying the forms of expression, *i. e.*, to express in brief phrases equations which with-